GEO-PHASE ENVIRONMENTAL

WORK PLAN

PRELIMINARY ENDANGERMENT ASSESSMENT
Former Haley Flying Service
21,000 Paradise Road, Tracy, CA
(Cal-Site # 39070037)

August 3, 2005
GPE Project No. 474.2

Submitted to:
Mr. Eric Wallberg
Department of Toxic Substance Control
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Mr. Erik Wallberg
California Department of Toxic Substance Control
8800 Cal Center Drive
Sacramento, CA 95826

RE: WORK PLAN – PRELIMINARY ENDANGERMENT ASSESSMENT
Former Haley Flying Service, 21,000 Paradise Road, Tracy (Cal-Site # 39070037)

Mr. Eric Walberg:

The attached Work Plan is submitted on behalf of Mrs. Dorothy Haley, the owner of the subject site, formerly operated as a crop-dusting service. The site is listed on the DTSC "Cal-Site" database, but to date, there is no direct evidence that pesticides have adversely impacted the soil or groundwater. The purpose of this PEA is to collect samples for analytical testing sufficient to assess whether such impact has occurred, develop preliminary information regarding the extent of the release, and assess the possible health risks.

Sincerely,

Geo-Phase Environmental Inc.
Stephen M. Lankford, RG, REA
President

cc: Dorothy Haley
Ryan Voorhees
San Joaquin County EHD

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1.0 INTRODUCTION

As defined by California Health and Safety Code, Division 20, Section 25319.5, a Preliminary Endangerment Assessment (PEA) is "*an activity which is performed to determine whether current or past waste management practices have resulted in the release of hazardous substance which pose a threat to public health or the environment*".

The following sub-sections describe the subject site, its setting, use, history, and outlines the potential problem.

1.1 Site Setting and Description

San Joaquin County has a Mediterranean climate with arid summers and mild winters. It has average annual rainfall of about 12 to 14 inches, most of which falls between November and March.

The site is a 10-acre industrial parcel at the intersection of Paradise Road and Pescadero Avenue near the northeastern limits of the city of Tracy. The area historically has been in agricultural use, but is in the process of being developed to industrial use. With the exception of a Yellow Freight truck terminal, the adjacent and nearby parcels remain in agricultural use or are being developed to industrial use.

The site consists of a very long, narrow strip of land that is currently mostly unused except for a small complex of buildings at the extreme east end of the parcel. Continental Express, a small trucking firm occupies the permanent buildings and an individual occupies two nearby portable buildings. (See the site maps for graphical details.)

Hydrogeology
As shown on the USGS topographic map, the area is in nearly flat-lying, with little topographic variation. The north lot line is bounded by an irrigation ditch, which flows inside a raised levee or berm. According to a report entitled *Spring 1999 Groundwater Report* by the San Joaquin County Flood Control District, it appears that first groundwater lies approximately 6 to 10 feet below ground surface and flows in a north to northeasterly direction.

Soils & Geology
The geologic features of this portion of San Joaquin County are typical of California's Central Valley, a large northwest/southeast trending asymmetric trough bounded by mostly pre-Tertiary metamorphic, sedimentary and granitic rocks. Depth to basement rock in the Valley ranges from up to at least 6 vertical miles in the southern portions of the Central Valley (the "San Joaquin" Valley) to up to 10 miles in sediment thickness in the northern expanse of the valley (the "Sacramento" Valley). In most of San Joaquin County, with the exception of its eastern and western margins which are dominated by the foothills of the Sierra Nevada and Coast Ranges, respectively, recently (Cenozoic) deposited terrestrial, lacustrine, and marine sediments overlie older (pre-Tertiary in age) consolidated marine sediments. These older sedimentary units in turn overlie pre-Tertiary crystalline basement rocks. (Source: R.W. Page, *U.S. Geological Survey Professional Paper 1401-C, Geology of the Fresh Ground-Water Basin of the Central Valley, California,* 1986).

The formation of soils in San Joaquin County is a function of the sedimentary transport path from the primary sediment sources. These sediment sources are the Coastal Range to the west and the Sierra Nevada to the east of the County. Generally, the longer the transport path the greater the working of the sediments prior to deposition as soils. Soils in much of the County to the east of the San Joaquin River are deposited as alluvial fans of the three major rivers of the east County, i.e., the Stanislaus, the Calaveras and the Mokelumne rivers. These soils can grossly be characterized as mixtures of well to poorly sorted sands and silt with little clay and organic material. Along the San Joaquin River and in the delta regions west of Stockton, the low energy river and flood plain environments deposit layers of silt and clays during seasonal floods. These fine-grained sediments flocculate out of slack water as floodwaters recede. Portions of far western San Joaquin County soils are formed by the erosion of the Coast Range and transport of these sediments is facilitated through seasonal run-off of the minor streams of the Coast Range. These soils are formed in environments similar to those of eastern San Joaquin county, i.e., alluvial fans, but tend to be less well worked in comparison to their Sierran derived counterparts due to the shorter transport path relative to Sierran derived sediments.

According the *Munger Map Book* of California Oil and gas Fields, and to the California Division of Oil and Gas Resources publication, *California Oil and Gas*, the Property lies within a natural gas producing field called the Tracy Gas Field. The field is productive from sands of the Tracy Formation at a depth of about 4,000 feet. Based on the available

information, it does not appear that any gas wells were ever drilled on, or near, the subject property.

The USDA Soils Conservation Service *Soil Survey of San Joaquin County, California*, October 1992 soil survey report classifies soil in San Joaquin County. The *Survey* generally classifies the soils in this area of Tracy as part of the Capay association; moderately well drained fine textured soils, very deep and subject to artificial wetness. The on-site soil is specifically classified as Capay clay, 0-2 percent slopes; a very deep, moderately well drained soil on alluvial fans.

1.2 Site Background

The property was the subject of a Phase I Environmental Site Assessment (ESA) completed in October of 2004 by Geo-Phase Environmental, Inc. The following paragraphs summarize the findings of the ESA.

According to the owner, Mrs. Haley, beginning in 1951 her late husband and a partner operated the site as Haley's Flying Service, a crop dusting operation (see Figures 2 & 3 for site layout). The specific agricultural chemicals that were stored and used on the site are not known, but are presumed to include: DDT and other organo-chlorine, organo-phosphate, and N-Methyl Carbamate, pesticides; and chlorinated and triazine herbicides.

Mr. Haley died in 1975, but the partner continued to operate the business until about 1989. Since then, the facility has been leased to several non-aviation related persons or companies. Since the mid- to late- 1990's the principal tenant has been Continental Express, a small trucking company. An individual serves as an informal caretaker of the property and he maintains two mobile buildings on the site next to the former hangars. Prior tenants have included a tomato packing company, and a truck repair business.

The existing buildings on the site date from the time the property was used for crop dusting. According to information in the county Assessor's records, in 1955, an aircraft hangar was constructed and a second hangar was constructed in 1968. An office that connects the two hangars was constructed in 1976. According to Mrs. Haley, the paved area east of the hangars and adjacent to the loading dock was where aircraft were loaded with pesticides or other agricultural chemicals for spraying. The pavement in the area of the loading dock is locally cracked, and it is clear that spilled liquids could have penetrated to the underlying soil. The loading dock was where bulk chemicals were stored, mixed and then pumped into waiting aircraft.

Upon returning from a flight, the crop dusting aircraft would have their tanks rinsed and the rinse water was pumped into an adjacent concrete-lined washout pit. The rinse water in the pit would be aerated in an attempt to breakdown any residual chemicals. The pit has 4-inch thick walls and is about 40 feet long, 8 feet wide and four feet deep. Visual inspection of the concrete lining reveals that the concrete was poured in at least two separate events. The seams where the several parts of the concrete meet are zones of weakness where liquid could

possibly penetrate. The area immediately adjacent to the washout pit is unpaved and consists of bare ground.

The property was formerly the site of a 1,000-gallon regular unleaded gasoline tank and a 5,000-gallon aviation fuel tank. These tanks were removed in 1990 under County supervision.

As a part of the tank closure, one confirmation soil sample was collected from beneath the 1,000-gallon tank and two soil samples were collected from under the 5,000-gallon tank. The sample from beneath the 1,000-gallon tank and one of two samples from beneath the 5,000-gallon did not contain detectable gasoline hydrocarbons or BTEX compounds. The other soil sample from beneath the 5,000-gallon tank contained 610 parts per million (ppm) of total gasoline hydrocarbons. It also included 6.5 ppm of benzene, 62 ppm of toluene, 41 ppm of ethylbenzene and 169-ppm of xylene. Due to the very shallow groundwater, the tank pit contained native groundwater, which was also sampled. The groundwater did not contain detectable gasoline hydrocarbons (<10ppm), but 3.9 parts per billion (ppb) of benzene were detected as were 18.4 ppb of toluene, 7.5 ppb of ethylbenzene and 32 ppb of xylene. Based on these sample results, the San Joaquin County Environmental Health Department issued a "notice of unauthorized release" in 1994. Information pertaining to mitigation of the release has been misplaced from the County files, but based on the LUST list maintained by the RWQCB, the site was adequately mitigated and officially closed.

The ESA identified several environmental issues that were deemed to represent ongoing "recognized environmental conditions" as follows:

- The soil in the vicinity of the mobile building is stained with oil in some areas. If the oil has penetrated more than a short distance into the soil, it could represent an adverse environmental condition.

- A surface release in front of the westerly hangar of two drums of water, oil and diesel fuel in 2001 was the subject of an emergency response call by County agencies. The spill was cleaned up, but the San Joaquin County Environmental Health Department indicated that additional work would be needed to investigate the extent of impact to the soil in the area of the spill.

- A surface release of what probably was pesticide impacted the soil in the vicinity of the washout area in 1982. The incident was the subject of a report by the California DTSC. The agency indicated that additional work is needed to investigate the impact to the soil, but to date it does not appear that such work has been completed.

- The operation of the concrete-lined washout-pit was not in compliance with applicable regulations and there is a possibility that the use of the pit could have impacted the soil in the area around the pit and adjacent concrete pad.

The area believed to be most at risk of having been impacted by a release(s) of agricultural chemicals is the soil around, and under, the washout pit and the area adjacent to, and under, the aircraft-loading pad. The ESA recommended that soil sampling be conducted to assess the distribution of various contaminants and that DTSC and the San Joaquin County Environmental Health Department be contacted to determine was steps would be needed to investigate the known and suspected releases.

1.3 Site Status

A search of State and Federal environmental databases completed by EDR identified Haley's Flying Service in several databases. In addition to the Cal-Site listing, the California Regional Water Quality Control Board (RWQCB) determined that the operation of the concrete washout pit was not in compliance with regulations regarding toxic waste pits and the site is listed in the WMUDS database. The site was also the subject of an investigation of a leaking underground fuel tank, but the release was adequately mitigated and subsequently was officially "closed". Haley's Flying Service is further identified in the AST list as the site of a permitted 10,000-gallon aboveground tank. The address associated with this listing is on Tracy Boulevard suggesting that the tank was actually located at another facility operated by the partner of Mr. Haley. The current owner of the property reports that no such tank was ever present and no evidence was found to indicate that a 10,000-gallon aboveground fuel tank was ever used on the site. Given the large indicated size compared to the relatively small scale of the operation, and the relative costs involved, it would seem unlikely that such a large tank would have ever been used at the site. Moreover, given that until 1990 (after crop dusting operations ended) underground tanks were present, it would seem to make little sense to operate a large aboveground tank.

Records on file with the San Joaquin County Environmental Health Department (SJC-EHD) include a report of a 2001 site inspection that revealed the presence of drums of hazardous waste, apparently consisting of an oil/diesel/water mixture. A "notice to abate" was issued. In addition to these conditions, records on file with the San Joaquin County Office of Emergency Services and the Environmental Health Department indicate that an emergency response team mobilized to the site on August 8, 2001. A surface release of at least 110 gallons of oil, water, and diesel fuel occurred on the premises occupied by Continental Express. The impacted soil was removed and placed in 55-gallon drums for off-site disposal. The point of release was in front of the westerly hangar. A notation on the incident report indicates additional investigation of the soil will be needed but there is no evidence to suggest this work was ever undertaken.

The site was originally placed on DTSC's Cal-Site list because of a 1981 fire that caused a pesticide spill from ruptured containers stored in a hanger. A recent review of DTSC records indicates, however, that such a fire never occurred on this property. The fire in question was at another airstrip about 5 miles away. Based on this information, the DTSC was asked to reconsider the Cal-Site listing, but agency personnel indicated that the past use of the site for

crop dusting operations was sufficient justification to maintain the listing, even though the fire that triggered the listing was acknowledged to have been at another location.

The DTSC has required that a PEA be completed before a letter requiring "no further action" can be issued. The owner of the property recently entered the DTSC's Voluntary Cleanup Program (VCP), and this Work Plan is intended to propose steps to complete an adequate PEA describing the soil and groundwater conditions as they relate to past crop dusting operations as well as the surface spill reported by San Joaquin County, and to assess the possible risks to public health.

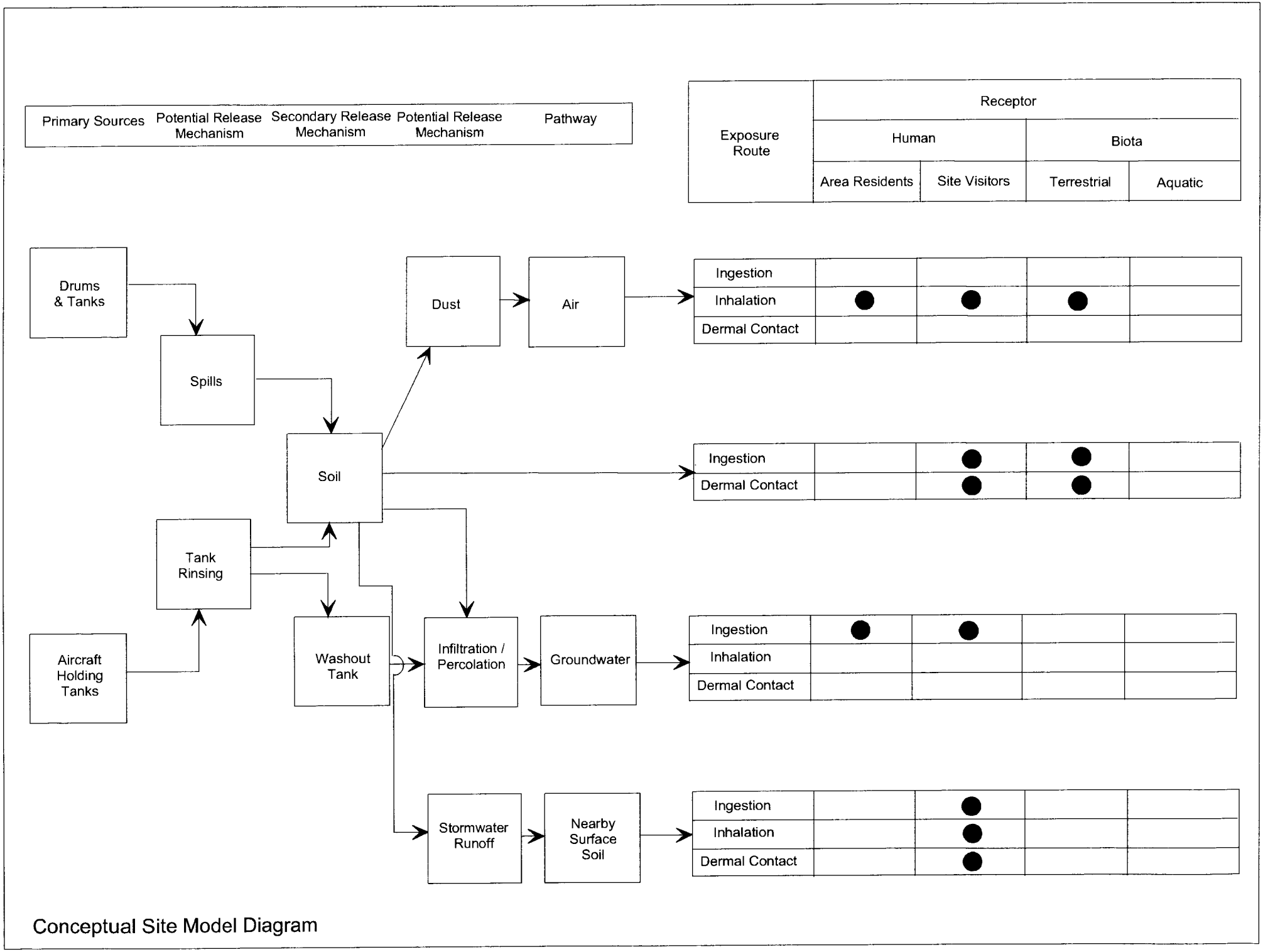
1.4 Potential Problem

It does not appear that any soil or groundwater samples have ever been collected to determine whether past operations on the property might have impacted the soil or groundwater with organo-chlorine pesticides or other contaminants. The only samples ever collected were confirmation soil samples taken in connection with the 1990 removal of a 1,000-gallon regular unleaded gasoline tank and a 5,000-gallon aviation fuel tank (see Section 1.2 for details).

The area of most concern is the past use of the pesticide loading onto aircraft and the use of the washout pit. These installations raise concerns regarding possible releases that might have impacted the soil. A secondary issue is the possibility that the reported spill of two drums of waste water/oil/diesel in the area in front of the westerly hangar may have impacted the soil. The Conceptual Site Model Diagram (next page) provides a summary of the potential contaminant pathways and receptors.

1.5 Scope of Work

This Work Plan describes a series of shallow soil samples that will be collected and tested for the possible presence of organo-chlorine, organo-phosphate, and N-Methyl Carbamate, pesticides; and chlorinated and triazine herbicides. Samples will be collected from all parts of the parcel, but will be concentrated in the area of the building complex, and especially the washout pit and aircraft-loading apron. In addition, two Geo-Probe soil borings will be installed to collect groundwater samples at points near the washout pit. These groundwater samples will also be tested for the pesticide and herbicide groups mentioned. One sample from the apron in front of the westerly hangar will also be tested for the presence of Volatile Organic Compounds (VOC's) and total extractible petroleum hydrocarbons (TEPH). Upon completion of the data collection phase, the laboratory analytical results will be evaluated and an assessment made regarding the potential for possible endangerment to the public health.



Conceptual Site Model Diagram

2.0 DATA COLLECTION

The following sub-sections describe the rationale and methods that will be used to obtain the samples and laboratory analytical information to be used in the completion of the PEA.

2.1 Field Work

Soil and groundwater samples will be collected at specific points on the subject site. These samples fall into three major categories:

- Shallow Soil Screening Samples
- Shallow Soil Targeted Samples
- Groundwater Samples

2.1.1 Sampling Strategy

Shallow Soil Screening Samples

Most of the site is undeveloped except for the runway. This undeveloped area encompasses about 8 of the 10 acres that comprise the site. There is no particular reason to suspect the area is at elevated risk to have been impacted by hazardous release(s), however, shallow, screening-level samples will be collected at a density of one sample point per acre. These samples will serve as a screening tool to help verify that the undeveloped area has not been impacted, and also to provide suitable background soil samples to compare with targeted samples to be collected in the two developed acres at the east end of the parcel. In the event that laboratory results indicate chemicals have impacted the area, a second round of sampling may be needed to obtain adequate background data.

A suite of 8 sample points will be located at grid points selected in the undeveloped area as shown on the overall site sketch map (Figure 2). The grid points were selected authoritatively so that samples can be obtained from the full length and breadth of the part of the parcel occupied by the runway. The shallow soil sample designations will be assigned the prefix "S" followed by a sequence number beginning with 1 and increasing from west to east. Two soil samples will be collected from each sample point, and these will be represent by letter suffixes increasing with depth. Thus, the designation "S-3B" will indicate the second shallowest sample collected from shallow sample point 3. The maps (Figures 2 and 3) also show the proposed sample points and their designations. The samples will be collected on approximately 200-foot spacing intervals, which correspond to one sample per acre.

Shallow Soil Targeted Samples

A suite of targeted shallow samples will be collected at specific points around the former flight facilities to determine if hazardous substances are present. The specific installations to be targeted are the area near the hangars, the aircraft loading / unloading area, and the washout pit. The sample points are selected at those points deemed most likely to have been impacted

by a possible past release. As shown on the detailed site map (Figure 3), a total of 14 targeted shallow soil sample points have been selected. The map also shows the proposed sample ID designations. The numbering convention described above for shallow screening samples will be carried through to these targeted samples. One of the samples (S-10B) will also be tested for the possible presence of VOC's and petroleum hydrocarbons that may have been released from a surface spill from two drums of waste liquid documented by the San Joaquin County Environmental Health Department

Groundwater Samples

The single installation believed most likely to have impacted the soil is the area of the washout pit. A groundwater sample will be collected from points near each end of the washout pit. Geo-Probe soil borings (designated B-1 and B-2) will be installed and advanced to a depth sufficient to penetrate the groundwater surface, and a sample of the shallow groundwater will be collected from each of the two borings.

2.1.2 Shallow Soil Sampling and Analysis

The shallow soil samples will be collected using hand auger soil boring tools. Where needed, asphalt or other surface obstructions will be penetrated by use of a small roto-hammer. Once native soil is encountered, the first 6-inches of soil will be collected as a discreet sample, and a second discreet sample collected from 6 to 12 inches will be collected as a second sample. These two, stacked samples will be collected for the purpose of obtaining information regarding the vertical distribution of any contaminants that may be detected. In this way, two discreet samples will be collected from each sample point. The samples will be collected by use of a slide-hammer driven soil-sampling tool equipped with a new, 2-inch diameter, 6-inch long brass or stainless steel sample sleeves. In cases where dry, loose soil prevents retention in the soil sampler, sample material may be collected directly from the auger bucket. Excluding the single VOC sample, the expected contaminants have low volatility; and this sample method should not result in a material degradation of sample quality. One sample will be collected for VOC testing. In order to assure adequate preservation of volatile compounds, an Encore sampling device will be inserted into the sample sleeve and the resulting sample will be kept separate from the remainder of the sample material. Upon retrieval, each sample tube will be sealed with aluminum foil (or Teflon patches) and plastic end-caps. The caps will be secured with duct tape, and the sample labeled. The labeling information will include the sample identification number as well as the date and time of collection (See Section 2.1.5 for additional details).

After labeling, the samples will be placed in a cooler chilled with water ice pending transport to the analytical laboratory under chain-of-custody protocol. Chain of custody (CofC) forms are documents used to track the handling of samples. All dates, times, persons and companies handling the samples are listed from the time the sample is collected to its ultimate disposal.

Sampling equipment will be double washed using a non-phosphate detergent after every use and rinsed with de-ionized water.

Upon retrieval, each soil sample accompanied by the CofC will be transported to Argon Laboratories of Ceres, CA, a California Environmental Protection Agency (CalEPA) certified laboratory (certification # 2359).

All samples will be tested for organochlorine pesticides by EPA method 8081A. The specific chemicals and their reporting limits are summarized in the tables in Appendix B.

In addition, two shallow soil samples from the vicinity of the washout pit and two from the area of the cracked aircraft loading pad will also be tested as follows:

- Organophosphorous herbicides and pesticides by EPA method 8141A,
- Chlorinated Herbicides by EPA method 8151A and,
- N-methyl Carbamate pesticides by EPA method 8318.

The specific chemicals and their reporting limits are summarized in the tables in Appendix B.

As mentioned above, one sample will be tested for volatile organic compounds (VOC's) by EPA method 8260B and for Total Extractable Petroleum Hydrocarbons by EPA method 8015m. The list of VOC's and their reporting limits are included in Appendix B.

2.1.3 Groundwater Sampling and Analysis

Prior to installing the proposed soil borings, the required drilling permit will be obtained from the San Joaquin County Environmental Health Department. The two Geo-Probe soil borings will be drilled using 1.5" outside diameter Geo-Probe drilling equipment owned and operated by V & W Drilling (C-57 License #720904). The borings will be advanced to a depth sufficient to penetrate the groundwater surface (est. about 10 feet). The boring locations (designated B-1 and B-2) are shown on the detailed site sketch map (Figure 3).

The Geo-Probe is a truck-mounted drilling system that uses direct push methodology to collect soil and groundwater samples. Four-foot long by 3/4-inch diameter stainless steel rods are pushed or hammered into the ground using a hydraulic ram or the hydraulically actuated hammer mounted on the ram. The lead section is a hollow drive-sampling device equipped with a 4-foot long by 1.5-inch inside diameter drive-sampler lined with a plastic sample sleeve.

The Geo-Probe allows continuous coring of the soil in the four-foot long liners inside the 1.5-inch sampling tool. Soil cores will be logged for lithologic and stratigraphic analysis. Upon retrieval, the soil at the end of each four-foot long plastic sample sleeve will be described and logged. The sample sleeve will be sealed with teflon sheets or aluminum foil, capped with plastic end caps, secured with tape, labeled, and retained for possible further analysis. During drilling, a log will be made of each boring. Information to be noted includes such data as sample depths, horizons of detectable contamination (detected by field methods), soil classification utilizing the Unified Soil Classification System and sediment description (color,

texture, composition, hardness, moisture content, and post-depositional changes that have occurred in the sediments).

Upon reaching a depth adequate to obtain a suitable groundwater grab sample, the hollow drill rods are removed from the boring, and replaced with a length of ½ inch PCV tubing with the lead 4-foot section being screened, thus creating a temporary well. A length of new, dedicated Teflon tubing fitted with a check valve is inserted inside of the PVC tubing and the oscillated to produce a stream of groundwater at the surface. The water is transferred directly to laboratory-supplied sample containers. Each sample will be stored in a 1-liter amber glass bottle provided by the laboratory. Each sample container will then be labeled and immediately transferred to a cooler chilled with water ice for transport to the laboratory under chain-of-custody.

After collecting the final sample, each boring will be filled to grade with Class G neat cement.

Upon retrieval, each groundwater sample will be transported to Argon Laboratories of Ceres, CA for analytical testing as follows:

- Organophosphorous herbicides and pesticides by EPA method 8141A,
- Chlorinated Herbicides by EPA method 8151A and,
- N-methyl Carbamate pesticides by EPA method 8318.
- Organochlorine pesticides by EPA method 8081A

The specific chemicals and their reporting limits are listed in the tables of Appendix B. General chemical characteristics such as acidity/alkalinity, electrical conductivity, dissolved solids content will not be requested, as this information is only valid for developed monitoring wells.

2.1.4 Waste Disposal

Decon water will be containerized in appropriate DOT containers for later recycling by a licensed hazardous waste hauler. No waste soil cuttings will be generated during the Geo-Probe drilling process or shallow soil sampling.

2.1.5 Documentation

A general field log will be maintained during the field work. Notes will be made of the date and time of the work, the personnel on site, the general weather, and the sequence and time of significant field events. Careful notes will be taken of each shallow sample collected for laboratory analysis. The shallow soil samples will be accompanied by a log form (Figure 5) describing the sample as well as sample location and time. All of the field notes will be maintained in a notebook. The two Geo-Probe soil borings will be logged as described above. An example copy of the boring log form is attached as Figure 4. Photographs will supplement the log information. General site photos will be made that show the overall site and the

sampling area. Specific photos showing field operation will be made to document field procedures. Notes of the photos, including time and location, will be entered in the field log.

2.2 Quality Assurance / Quality Control

The U.S. EPA has defined quality assurance (QA) as a "total integrated program for assuring the reliability of monitoring and measurement data". Quality control (QC) is "the routine application of procedures for obtaining prescribed standards of performance in monitoring and measurement process".

2.2.1 Field QA/QC

To assure an adequate level of cleanliness and prevent cross-contamination of sample material, sampling equipment must be cleaned before and between uses. Actual sample containers will be new to assure cleanliness. The slide-hammer soil sampler, Geo-Probe rods, and other re-usable equipment that comes in direct contact with sampling materials will be cleaned by washed using a non-phosphate detergent after every use and rinsed with de-ionized water. New nitrile gloves will be used when handling sample materials and the gloves will be replaced for each sample.

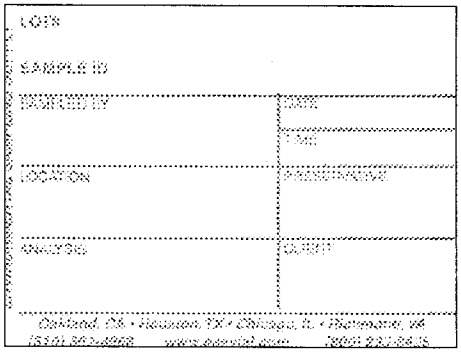
To assure an adequate level of confidence in the sample collection procedures and laboratory extraction and analytical procedures, a suite of blank and duplicate samples will be collected for testing.

Travel (or trip) blanks are sample containers of analyte-free media, usually water, taken prior to traveling to the sampling site and returned to the laboratory with the environmental samples. These QC samples measure contamination from the air and/or cross-contamination from other samples transported and stored together. Equipment blanks are created in the field by passing analyte-free water through reusable de-contaminated sample equipment such as the soil sampler and the Geo-Probe check valve and slotted tubing.

A split sample is a sample, which has been thoroughly blended in the laboratory and split between two containers. This technique is used to demonstrate that the laboratory procedures are consistent and yield comparable results.

Upon collection, samples and blanks will be placed in a cooler for transport to the analytical laboratory. The samples will not be shipped, but rather will be delivered directly to the laboratory by the Geo-Phase Environmental, Inc. person who collects the samples. To prevent cross-contamination during transport, samples will be placed in a bag to prevent possible contamination within the cooler. Fragile glass containers will be placed in bubble-wrap or foam containers to prevent breakage during transport. Each cooler will contain a temperature blank to demonstrate that the temperature has been reduced adequately to minimize evaporation of volatile compounds from samples.

Chain-of-custody forms provided by the laboratory will accompany the samples. The image below represents the labels that are expected to be used for soil and groundwater samples to be submitted for laboratory analysis:



The completed chain of custody forms will be placed in a plastic bag and placed in the cooler for transport to the laboratory.

The following table summarizes the QA samples to be collected in the field:

Sample Type	Samples
Soil Samples	
Split Replicates – Pesticide/Herbicide Samples	2
Split Replicates - VOC Samples	1
Groundwater Samples	
Travel Blanks	1/day
Equipment Blanks (Geo-Probe (1) & Hand Auger Sampler (2))	3
Split Replicates	1
Sample Transport	
Temperature Blank	1/ Cooler

Sample blanks will be identified with a sample point ID's (as shown on the site maps) along with the letter C or D. This contrasts with the letters A and B, which will be used for normal sample ID's.

2.2.2 Laboratory QA/QC

The State certified analytical laboratory uses its own quality assurance procedures including method blanks, matrix spike, and spike duplicates and calculates percent recoveries. These tests are conducted to verify accuracy and consistency of laboratory analytical procedures. Brief descriptions of these procedures follow:

Method Blank: The method blank is used to assess the presence or absence of analytical target constituents or interferents in the analytical process.

Matrix Spike: An environmental sample to which a known amount of target analyte is added. The matrix spike provides information about the performance of target analytes in the subject matrix, and is used to assess accuracy. The spike is the addition of a known amount of analyte to a normal sample in the lab.

Matrix Spike Duplicate: An exact replicate of the matrix spike. Used to assess precision in the subject matrix relative to the matrix spike. Especially useful if no target analytes are present in the subject sample duplicates. Matrix spike duplicates are the second of a pair of lab matrix spike samples, and are analyzed to check the precision of analytical procedures.

3.0 PUBLIC PARTICIPATION & COMMUNITY ASSESSMENT

The public participation component of the PEA process establishes two-way communication between the affected community, and the governing regulatory agencies. Geo-Phase Environmental, Inc has researched the history of the site to establish the potential for the presence of contaminated media within the site boundaries as part of a Phase I Environmental Site Assessment. At this time, there is no known environmental contamination due to pesticides. If such contamination is identified during the PEA process, a community profile will be developed and submitted to DTSC.

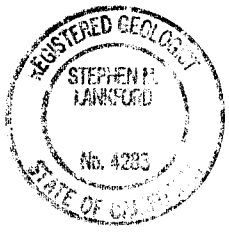
5.0 SIGNATURE AND CERTIFICATION

Geo-Phase Environmental Inc. will perform this work in accordance with accepted geologic and hydrologic standards of the State of California including the DTSC document entitled Preliminary Endangerment Assessment, Guidance Manual. Geo-Phase Environmental Inc. is not responsible for undisclosed conditions.

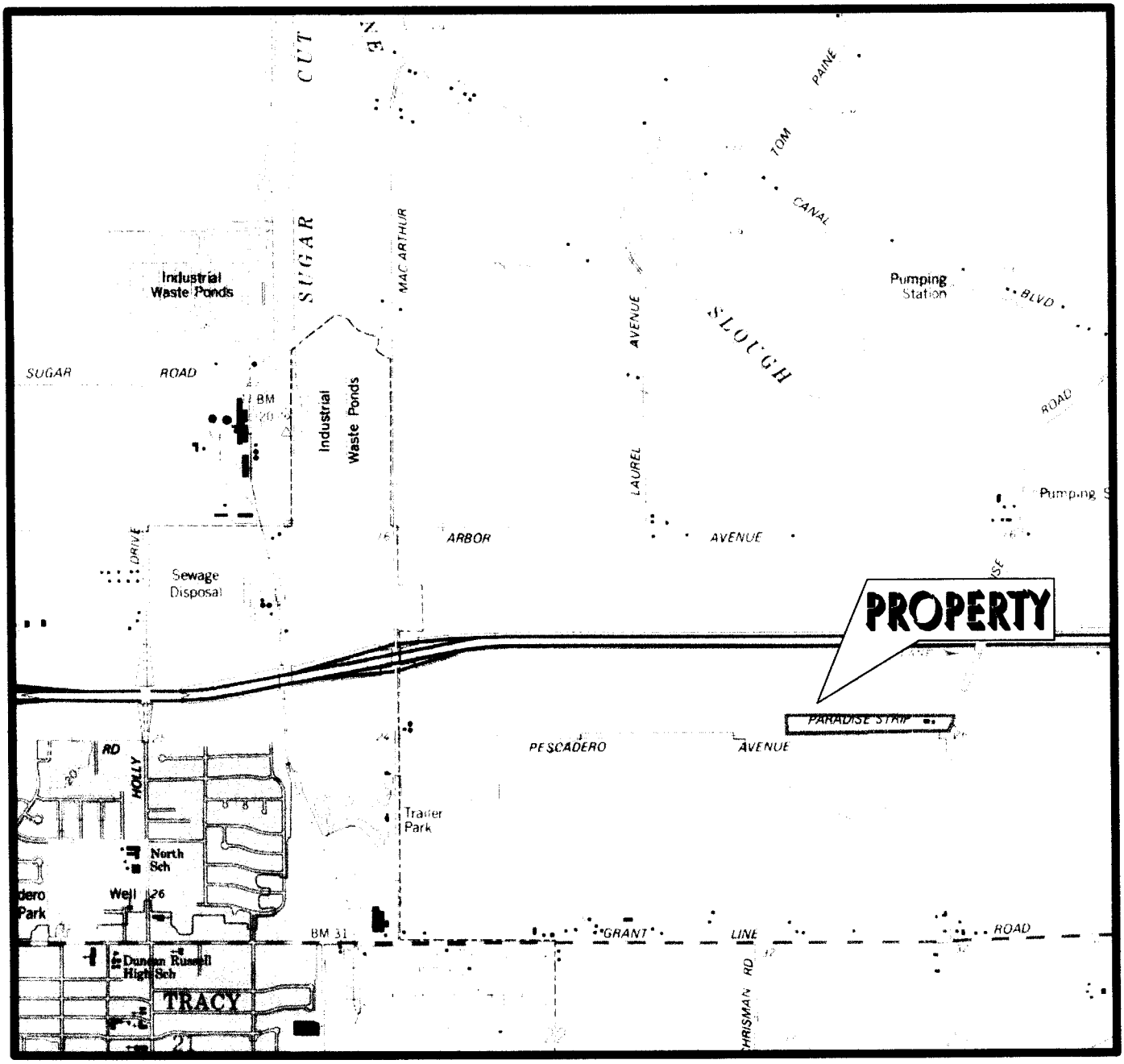
This work plan was prepared by:

Geo-Phase Environmental Inc.

Stephen M Lankford,
Registered Geologist #4283



FIGURES



Modified from the USGS Topographic Map Union Island Quadrangle, 7.5 Minute Series.

USGS Topographic Map
Former Haley's Flying Service
21000 Paradise Road
Tracy, CA

N

0

Scale 2,000 Feet

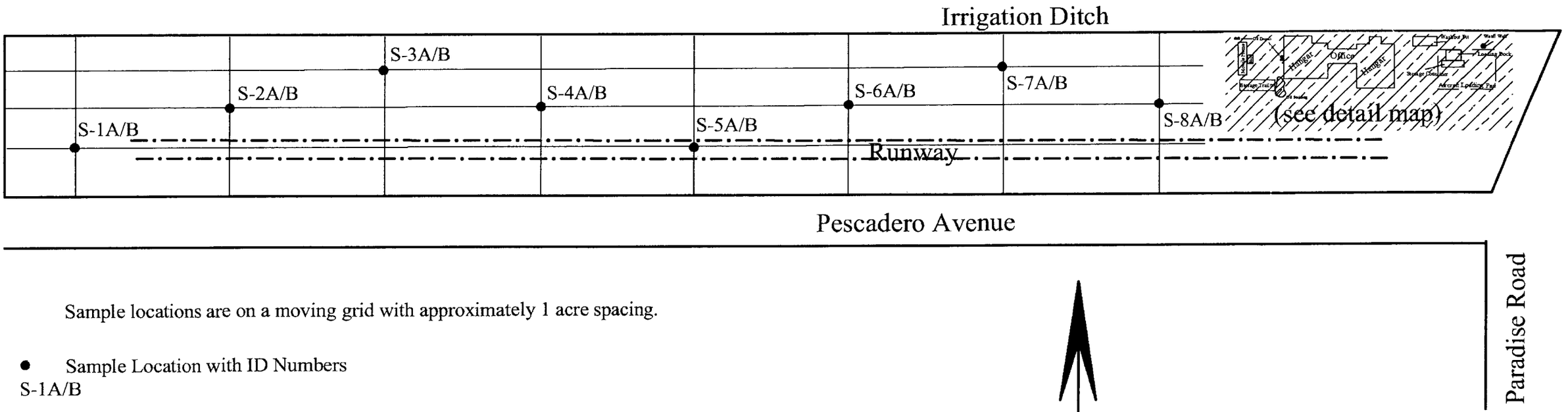


Figure 2
Overall Site Sketch Map
With Screening Level Shallow Soil Sample Locations
Former Haley Flying Service
21,000 Paradise Road
Tracy, CA

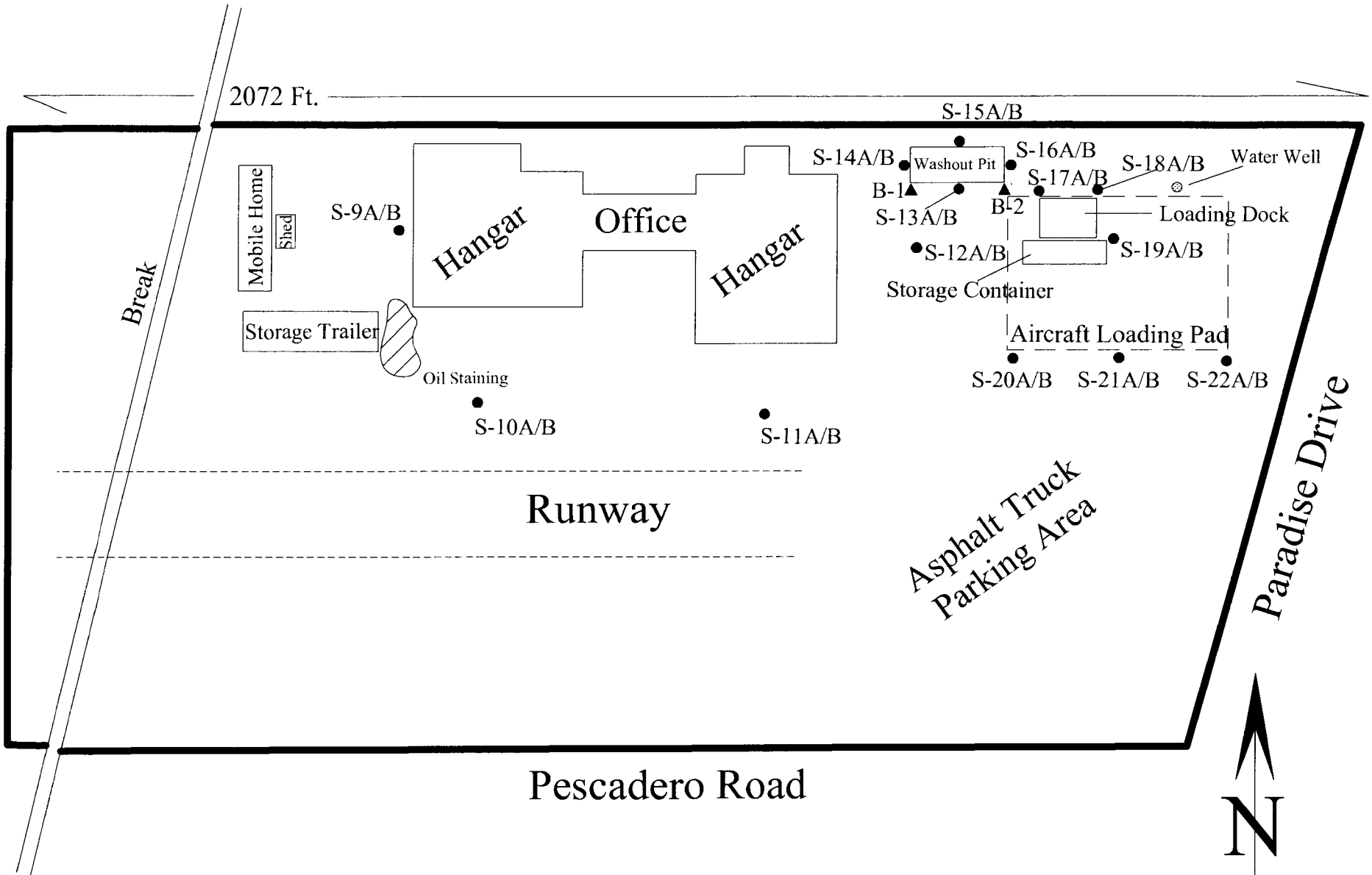


Figure 3
Detail Site Sketch Map
With Targeted Samplel Locations
Former Haley's Flying Service
21,000 Paradise Ave.
Tracy, CA

Project Name
Address

Geologist
Boring No.
Date/Time Started-Finished
Boring Location

Location Map:

Key
TD=Total Depth
CSD=Casing Depth
AS=Annular Seal
FP=Filter Pack
Gr=Grout
AnDi=Annular Diam.
CSDi=Casing Diam.
SS=Slot Size
=Depth to Water

Depth-Below Grade (Ft)	Sampling Interval	Sample Identification	Time	Blow Count (Blows/0.5 ft)	Well Details	Columnar Section	USCS Classification	Description	Remarks
2.5									
5.0									
7.5									
10.0									
12.5									
15.0									

Notes:

Shallow Sample Log Form

Sample ID _____ Date _____ Time _____

Location _____

Soil Description

Color _____ Texture (sand/silt/clay) _____

Grain Size _____ Sorting _____

Comments _____

Sample ID _____ Date _____ Time _____

Location _____

Soil Description

Color _____ Texture (sand/silt/clay) _____

Grain Size _____ Sorting _____

Comments _____

Appendix A

Health and Safety Program

I INTRODUCTION

This health and safety plan (HSP) covers the soil and groundwater sampling field work associated with the attached PEA Work Plan. This plan describes measures designed to assure worker protection from adverse exposure to site contaminants and other physical hazards.

Project Background
The subject site, formerly Haley's Flying Service, operated as an agricultural crop dusting service. As such, we believe that organochlorinated pesticides and herbicides, probably including DDT, were stored and used on the premises. See the attached Work Plan for details.

Key Personnel & Responsibility

The following table summarizes the personnel expected to participate in the field work and their respective responsibilities and authority:

Person	Affiliation	Responsibility
Steve Lankford	Geo-Phase Environmental Inc.	Sample Collection and Exercises Overall Management & Site Safety
V&W Driller	V&W Drilling	Safe and Proper Drilling of Geo-Probe Borings
Eric Wallberg	DTSC	Regulatory Oversight

The Site Safety Officer (Steve Lankford) has the responsibility to:

- Implement the HSP.
- Monitor compliance with the HSP.
- Temporarily suspend field activities if the health and safety of the personnel are endangered.
- Excuse an individual from the site for infractions of the HSP.
- Upgrade protection levels as required.
- Coordinate use and maintenance of air monitoring equipment and personal protective equipment.
- Monitor worker use of personal protective equipment and direct upgrade or downgrade according to criteria established in the HSP.

II JOB HAZARD ANALYSIS

Chemical Exposure
There are no known health hazards associated with hazardous releases at this site. Insofar as the property was formerly used as the site of a crop dusting operation, however, it must be assumed that pesticides, including DDT, may be present in the soil. The principal work-site health hazard associated with this condition is inhalation of dust that could be impacted with pesticides. Ingestion of small amounts of contaminated soil can also occur where an adequate level of hygiene is not exercised. Skin contact could also represent a risk.

It is not known which, if any, pesticides may be present in the soil, but the most toxic substance likely to be present is DDT (dichlorodiphenyltrichloroethane). DDT is a poison that may be harmful if inhaled or absorbed by dermal contact, and it is a possible carcinogen. It is a bio-accumulative compound that can be stored in body fats. According to available toxicity data, the oral dosage lethal to 50 percent of rats (LD-50) is 87 mg/Kg, and dermal dosage found lethal to 50 percent of rats is 1,931 mg/Kg.

The indicated protection from DDT exposure is the use of safety glasses, gloves, and good ventilation. The possibility of inhalation of dust will be mitigated by sampling only when winds are sufficiently calm that dust is not be raised.

Heat Stress / Stroke

During periods of high summer heat, heat stress and heat exhaustion can pose a hazard to workers, especially for those site workers wearing impermeable or semi-impermeable protective clothing. In this case, such clothing is not expected to be needed.

Personnel should be aware of the early signs and symptoms of heat stress/exhaustion. These include rapid or pounding heart rate, lightheadedness, fatigue, and excessive sweating. As heat stress continues cramping or muscle spasms may develop and the person becomes weak. As heat stress progresses to heat exhaustion, the person becomes nauseous, develops a headache, and becomes less responsive. Ultimately, heat stroke occurs which is marked by increased body temperature, mental confusion, loss of consciousness, and rapid but weak pulse. These conditions can result in severe injury or death.

First Aid – If any of these symptoms occur, immediately move the victim to a shady, cool area with good air circulation. Cool victim; if conscious, he may try to sip water. Remove protective clothing; treat for shock. Get medical attention.

Noise

The job site is not generally expected to be so noisy as to pose a hazard to hearing. The only equipment expected to be used that generates significant noise is the Geo-Probe drilling rig, a small electrical generator, and a small roto-hammer. This equipment will be muffled and should not pose a health hazard unless prolonged exposure at very close proximity is experienced. By using normal work procedures, no special hearing protection should be needed.

Safety Hazards

Common physical hazards associated with soil boring and sampling activities, are expected lie primarily with operation of the Geo-Probe drilling rig. The drilling contractor is responsible for the proper inspection, maintenance and use of their equipment. All work will be conducted in a safe manner in compliance with appropriate OSHA regulations (29 CFR).

III WORKER PROTECTION

Chemical Exposure Prevention
Workers will be protected from direct chemical exposure by wearing appropriate personal protective equipment (PPE). Direct contact with possibly pesticide-contaminated soil will be avoided by the use of boots and gloves when contacting soil or other materials that could contain elevated levels of organochlorinated pesticides. If wind or mechanical disturbance creates dusty conditions, sampling activities will not be continued until dusty conditions abate.

Heat Stress Monitoring & Prevention
Depletion of body fluids and body electrolytes should be avoided. Personnel shall eat and drink properly on and off the job during this project. Water shall be provided and drinking encouraged.

The work schedule shall be adjusted as needed to respond to particularly hot days. The working day may be curtailed if temperatures reach 90 degrees.

Any personnel who experience light-headedness, excessive fatigue, headaches, nausea, clamminess or other signs of heat stress will cease work, rest in a shady area, and drink water. If symptoms persist for more than a few minutes, work will cease for the day and medical attention will be sought.

Noise Exposure Protection
Workers in close proximity to engines or other equipment producing continuous noise in excess of 90 dB shall wear hearing protection. Workers exposed to impact noise in excess of 115 dB shall wear hearing protection. Neither of these situations are anticipated with any of the equipment that will be used.

General Worker Safety Protection
At a minimum, boots and gloves will be worn during sampling. During machine drilling operations, workers will don safety boots and hardhats. When conditions are dusty, sampling operations will be terminated.

Medical Surveillance
In view of the very limited number of personnel involved, workers will need to be responsible for self-monitoring. They should be aware of the symptoms of heat stress as described above, and report any symptoms to the site safety manager, and take steps to deal with the symptoms. In addition, if more than one person is on the site, they will be instructed to observe signs of heat stress in co-workers.

Decontamination
Personnel and equipment leaving the Exclusion Zone shall undergo decontamination on-site. This will consist of washing areas of skin that have been exposed to possibly contaminated soil with

soap and water. Used nitrile gloves will be placed in a plastic bag, sealed, and disposed of as solid waste. At the end of the workday, clothing (including boots) should be removed and not re-worn until thoroughly cleaned.

IV SITE CONTROL

Exclusion Zone
The exclusion zone is where contamination does, or may, occur. Each excavation or soil boring area will be designated as an Exclusion Zone. Geo-Phase Environmental Inc. personnel and subcontractors have the authority to enter this zone. Governmental regulatory personnel also may enter. All other persons are to be kept out of the exclusion zone.

Contamination Reduction Zone
The Contamination Reduction Zone is the transition area between the Exclusion Zone and the clean area. The decontamination of drilling, sampling and personnel protective equipment will take place in the Contamination Reduction Zone.

Support Zone
The Support Zone is a clean area where equipment, supplies, materials, vehicles, and the Site Safety Plan are kept. Personnel may wear normal work clothes within this zone.

V TRAINING

OSHA regulations under Title 29 CFR, Part 1910.120 include training requirements applicable to all employees who may be exposed to hazardous waste sites. This site is not known to fall into that category, but site workers will, nevertheless, have completed 40 hours of HAZWOPR training with 8-hour annual refresher courses, and three days on-the-job training under the supervision of a trained, experienced supervisor.

The Site Safety Officer will regularly hold safety meetings with drilling personnel or other contractors, which will include, but not be limited to, potential routes of exposure; types, uses, and limitations of personal protective clothing including respirators; and proper decontamination procedures. A safety meeting will be held prior to work each day, if the work plan has been altered, and when new personnel join the work team.

Emergency Contacts

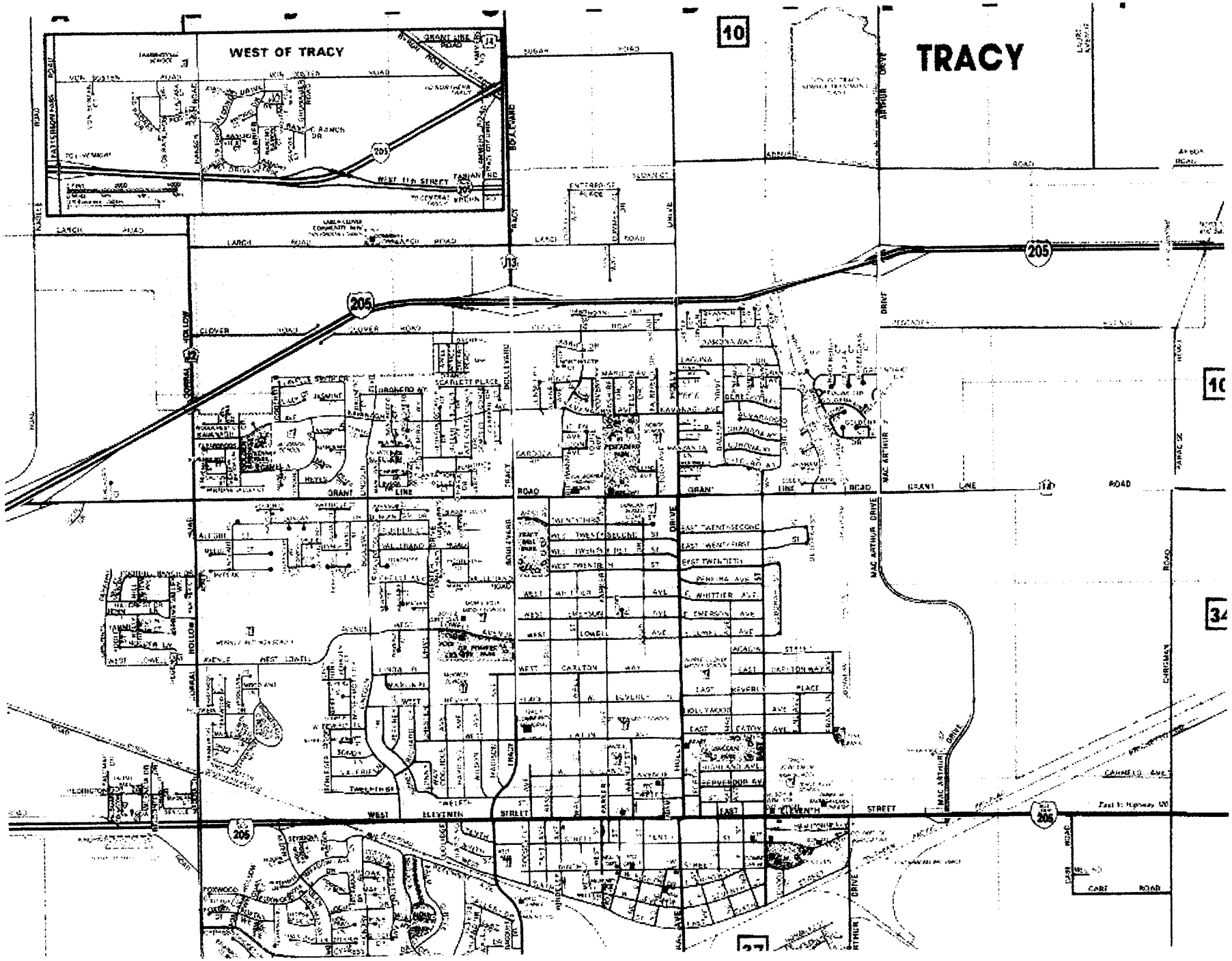
In the event of an injury or accident, appropriate emergency personnel will be contacted.

Local County Environmental Agency: **San Joaquin County Environmental Health Department**	**(209) 468-3420**
Company/Site Health and Safety Officer: **Steve Lankford-Geo-Phase Environmental Inc.**	**(209) 569-0293** **(209) 499-4865 (mobile)**
Local Fire Department: **Tracy Fire Department / Ambulance**	**911**
Nearby Hospital: **Sutter Tracy Community Hospital (1420 N. Tracy Blvd.)**	**(209) 835-6034**

The route to the hospital is as follows:

1. West on Pescadero, to MacArthur Ave.
2. Right on MacArthur then get on I-205 west.
3. West on 205 to the Tracy Blvd. exit (approx. 1 mile)
4. Take Tracy Blvd exit south (left).
5. Hospital about 1.3 miles south at intersection with Beverly Place

A map showing the route to the hospital is attached at the end of this HSP.



Map to Tracy Hospital

APPENDIX B

Laboratory Reporting Limits

8081 Analyte List	Soil RL's (ug/kg)	Water RL's (ug/L)
Aldrin	1	0.005
a-BHC	1	0.01
b-BHC	1	0.005
d-BHC	1	0.005
g-BHC	1	0.02
Chlordane (Technical)	25	0.1
a-Chlordane	1	0.05
g-Chlordane	1	0.05
p,p-DDD	1	0.01
p,p-DDE	1	0.01
p,p-DDT	1	0.05
Dieldrin	1	0.01
Endosulfan I	1	0.02
Endosulfan II	1	0.01
Endosulfan sulfate	1	0.05
Endrin	1	0.01
Endrin aldehyde	1	0.05
Heptachlor epoxide	1	0.01
Heptachlor	1	0.01
Methoxychlor	1	0.1
Toxaphene	50	1

8141 Analyte List	Soil RL's (mg/kg)	Water RL's (ug/L)
Alachlor	0.1	1
Atrazine	0.1	0.5
Azinphos methyl (Guthion)	0.1	1
Bolstar (Sulprofos)	0.1	1
Chloropyrifos	0.1	1
Coumaphos	0.1	1
Demeton-O	0.1	1
Diazinon	0.1	0.25
Dichlorvos (DDVP)	0.1	1
Dimethoate	0.4	2.5
Disulfoton (Di-Syston)	0.1	0.5
EPN	0.1	1
EPTC	0.1	1
Ethion	0.1	1
Ethoprop	0.1	1
Fensulfothion	0.1	1
Fenthion	0.1	2.5
Fonophos	0.1	0.5
Malathion	0.1	1
Merphos	0.4	1
Mevinphos (Phosdrin)	0.1	1
Molinate	0.1	0.9
Ethyl parathion	0.1	1
Methyl parathion	0.1	1
Phorate (Thimet)	0.1	1
Prometon	0.1	0.5
Ronnel	0.1	1
Simazine	0.1	1
Stirofos (Tetrachlorvinphos)	0.1	1
Terbacil	0.1	2
Terbufos (Terbuphos)	0.1	0.5
Thiobencarb	0.1	1
Tokuthion (Prothiofos)	0.1	2.5
Trichloronate (Agritox)	0.4	1

8151 Analyte List	Soil RL's (mg/kg)	Water RL's (ug/L)
Acifluorfen	0.05	1
Bentazon	0.05	2
Chloramben	0.05	1
2,4-D (Dichlorophenoxyacetic acid)	0.05	10
2,4-DB	0.05	1
Dalapon	0.05	10
DCPA mono and diacid	0.05	0.1
Dicamba	0.05	1
3,5-Dichlorobenzoic acid	0.05	1
Dichloroprop	0.05	1
Dinoseb (DNBP)	0.05	2
MCPA	5	20
MCPP	5	20
4-Nitrophenol	0.05	1
Pentachlorophenol (PCP)	0.05	0.2
Picloram	0.05	1
2,4,5-T (Trichlorophenoxy acetic acid)	0.05	1
2,4,5-TP (Silvex)	0.05	1

Volatile Organics - GC/MS

Method: EPA 8260B

Compound	Result, mg/kg	Result, ug/L	Compound	Result, mg/kg	Result, ug/L
Benzene	0.005	0.5	1,3-Dichloropropane	0.005	0.5
Bromobenzene	0.005	0.5	2,2-Dichloropropane	0.005	0.5
Bromochloromethane	0.005	0.5	1,1-Dichloropropene	0.005	0.5
Bromodichloromethane	0.005	0.5	c-1,3-Dichloropropene	0.005	0.5
Bromoform	0.005	0.5	t-1,3-Dichloropropene	0.005	0.5
Bromomethane	0.005	0.5	Ethylene Dibromide	0.005	0.5
n-Butyl benzene	0.005	0.5	Ethylbenzene	0.005	0.5
sec-Butyl benzene	0.005	0.5	Hexachlorobutadiene	0.005	0.5
tert-Butyl benzene	0.005	0.5	Isopropylbenzene	0.005	0.5
Carbon Tetrachloride	0.005	0.5	p-Isopropyl toluene	0.005	0.5
Chlorobenzene	0.005	0.5	Methylene Chloride	0.005	0.5
Chloroethane	0.005	0.5	Naphthalene	0.005	0.5
Chloroform	0.005	0.5	n-Propyl benzene	0.005	0.5
Chloromethane	0.005	0.5	Styrene	0.005	0.5
2-Chlorotoluene	0.005	0.5	1,1,1,2-Tetrachloroethane	0.005	0.5
4-Chlorotoluene	0.005	0.5	1,1,2,2-Tetrachloroethane	0.005	0.5
Dibromochloromethane	0.005	0.5	Tetrachloroethene	0.005	0.5
1,2-Dibromo-3-chloropropane	0.005	0.5	Toluene	0.005	0.5
Dibromomethane	0.005	0.5	1,2,3-Trichlorobenzene	0.005	0.5
1,2-Dichlorobenzene	0.005	0.5	1,2,4-Trichlorobenzene	0.005	0.5
1,3-Dichlorobenzene	0.005	0.5	1,1,1-Trichloroethane	0.005	0.5
1,4-Dichlorobenzene	0.005	0.5	1,1,2-Trichloroethane	0.005	0.5
Dichlorodifluoromethane	0.005	0.5	Trichloroethene	0.005	0.5
1,1-Dichloroethane	0.005	0.5	Trichlorofluoromethane	0.005	0.5
1,2-Dichloroethane	0.005	0.5	1,2,3-Trichloropropane	0.005	0.5
1,1-Dichloroethene	0.005	0.5	1,2,4-Trimethylbenzene	0.005	0.5
cis-1,2-Dichloroethene	0.005	0.5	1,3,5-Trimethylbenzene	0.005	0.5
trans-1,2-Dichloroethene	0.005	0.5	Vinyl Chloride	0.005	0.5
1,2-Dichloropropane	0.005	0.5	Xylenes, total	0.005	0.5
t-Butanol (TBA)	0.005	0.5	Ethyl-t-Butyl Ether (ETBE)	0.005	0.5
Methyl-t-Butyl Ether (MTBE)	0.005	0.5	t-Amyl Methyl Ether (TAME	0.005	0.5
Di-Isopropyl Ether(DIPE)	0.005	0.5			

Note(s):

Water samples are reported in ug/L; soil/sludge samples in mg/Kg; product/oil/non-aqueous liquid samples in mg/L.

ND means not detected at or above the stated reporting limit; N/A means analyte not applicable to this analysis.

8318 Analyte List	Soil RL (mg/kg)	Water RL (ug/L)
Carbofuran	0.04	2
Propoxur	0.04	2
3-OH-carbofuran	0.04	2
Oxamyl	0.04	2
Aldicarb	0.04	2
Methomyl	0.04	2
Methiocarb	0.04	2
Aldicarb Sulfoxide	0.04	2
Aldoxycarb	0.04	2
Carbaryl	0.04	2